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Incidence of Colic in U.S. Horses

The term colic refers to abdominal pain that may be caused by many different problems. In horses, most of these problems involve the gastrointestinal tract. However, diseases of other structures within or associated with the abdomen, such as kidneys, liver, uterus, and peritoneum, may also result in signs of colic. Conditions that cause colic are often placed in functional categories such as ileus, obstruction, strangulation, enteritis, and ulceration.

The USDA's National Animal Health Monitoring System (NAHMS) Equine '98 study was the first large-scale, formal initiative to estimate the incidence of equine colic in the continental United States.

Data for the NAHMS Equine '98 study regarding the national incidence of colic in U.S. horses and its economic impact on U.S. horse operations were gathered from spring 1998 to spring 1999. A total of 1,026 horse operations from 4 regions¹ consisting of 28 states was monitored for colic.

Each operation had three or more horses as of January 1, 1998. Horses housed at racetracks were not included in the estimates of health events and management practices for this part of the study.

More detailed information regarding the NAHMS Equine '98 study design and implementation is available in the NAHMS Equine '98 *Part I: Baseline Reference of 1998 Equine Health and Management*.

Results from the NAHMS Equine '98 study, and the population and value estimates from both the National Agricultural Statistics Service (NASS) and the American Horse Council, were used to determine national economic estimates for colic.

Death-loss costs were calculated by multiplying the number of colic events that ended in death by the average sale value of a horse in the U.S in 1998.

The incidence of colic was 4.2 events/100 horses per year [Standard Error (SE)=0.7]. There were no differences in colic incidence rates among geographic regions.

The inclusive percentage of operations with one or more colic events was 16.3 (SE=2.2). Overall, 1.4 percent (SE=0.6) of colic events resulted in surgical intervention. The case fatality rate for all colic events was 11.0 percent (SE=2.8).

In the first phase of the NAHMS Equine '98 study, causes of equine mortality in 1997 were determined. Colic was second only to old-age as the cause of death. Death of horses with colic, the high average cost of care for horses that required surgery, and the number of horses that required surgery contributed to the cost of colic, which was estimated at \$115 million in 1998.

The most common cause of owner-reported colic was "unknown cause," followed by gas colic, and

¹ **Western Region:** California, Colorado, Montana, New Mexico, Oregon, Washington, Wyoming.

Northeast Region: New Jersey, New York, Ohio, Pennsylvania.

Southern Region: Alabama, Florida, Georgia, Kentucky, Louisiana, Maryland, Oklahoma, Tennessee, Texas, Virginia.

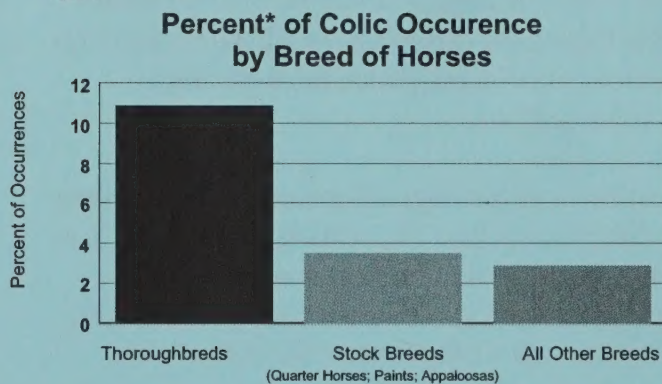
Central Region: Illinois, Indiana, Kansas, Michigan, Minnesota, Missouri, Wisconsin.



feed-related factors. Other causes less commonly listed included impaction; twisted intestine; weather-related; dehydration; pregnancy-related; sand; parasites; stress; associated with cribbing; exercise-related; adhesions; old age; gastric or intestinal ulceration; colitis; drug reaction; tumor; transport-related; associated with ovulation; consequent to viral infection; enterolithiasis; and secondary to limb trauma.

Neither gender nor use of horse was associated significantly with colic; however, breed of horse was associated (Figure 1.) Thoroughbreds were more likely to develop colic [10.9/100 horses per year (SE=3.6)] than were stock horse breeds (Quarter Horses, Paints, Appaloosas) [3.5 colics/100 horses per year (SE=0.6)]; or all other types of horses [2.9 colics/100 horses per year (SE=0.5)].

Figure 1.



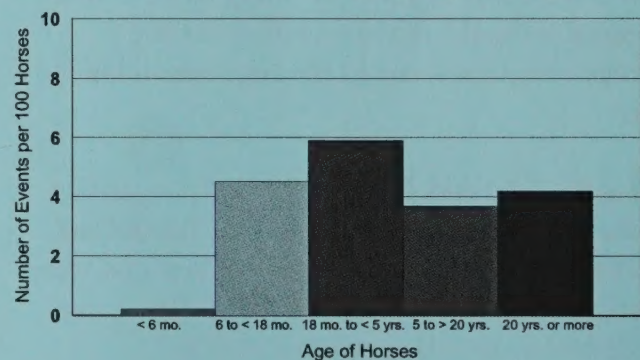
It is possible that factors other than breed accounted for the finding that Thoroughbreds appeared to be more likely to develop colic. Since the NAHMS Equine '98 study did not include horses at racetracks, the Thoroughbreds in the study may not have been representative of the breed as a whole in the U.S. For example, some Thoroughbreds that reside at racetracks may be different in some ways from those that reside off-track. In addition, factors other than residing at a racetrack may have confounded the observed association between colic and breed.

Breed of horse has been identified as a risk factor for colic in some studies of colic but not in others. If owners of certain horse breeds were more observant for colic, or if some breeds were managed differently, a particular breed could appear more predisposed to colic than its counterparts.

Foals less than 6 months old were significantly less likely to develop colic than were horses in all other age categories. Incidence of colic events per year by age categories (Figure 2) was 0.2 events per 100 horses (SE=0.1) for foals <6 months (reference category); 4.5 events per 100 horses (SE=1.5) for horses aged 6 months to <18 months; 5.9 events per 100 horses (SE=2.2) for horses aged 18 months to <5 years; 3.7 events per 100 horses (SE=0.6) aged 5 years to <20 years; and 4.2 events per 100 horses (SE=1.3) for horses aged 20 years or more.

Figure 2.

Annual Incidence of Colic Events (# Events/100 Horses) by Age Categories



The population of horses observed and the type of monitoring for colic could potentially influence the conclusions of an epidemiologic study of colic and its associated risk factors. Historically, the reported incidence of colic from other studies has varied from 3.5 to 26 colics/100 horses per year. The NAHMS Equine '98 estimate of colic incidence was 4.2 colics/100 horses per year.

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